

CURRENT LITERATURE

BOOK REVIEWS

Botany of crop plants

A notable impetus to the study of botany in agricultural colleges and to the study of agricultural plants and problems in botanical departments generally is bound to be given by ROBBINS' recent volume on the botany of crop plants.¹ About 70 pages are devoted to a brief summation of some of the more important topics in general botany, under the headings: the seed plant body, fundamental internal structures, roots, stems, leaves, flowers, fruits, seeds and seedlings, and the classification and naming of plants. The body of the book presents in compact and pleasing form the botanical features of our chief crop plants, arranged in the familiar taxonomic sequence from grasses to composites. For each crop there is a discussion of the chief botanical features relating to habit, structure, and behavior, a classification (often with a key), a consideration of the chief uses, and a list of the more important references. As a sample of the mode of treatment we may take corn, to which 35 pages are devoted. The paragraph headings under corn are habit of plant and roots, prop roots, stem, leaves, inflorescence, staminate inflorescence, staminate spikelet, pistillate inflorescence, pistillate spikelet, hermaphroditic flowers, opening of the flowers and pollination, fertilization and development of the grain, xenia, variation, results of self-fertilization, the mature grain, corn starch, germination, classification, origin, environmental relations, uses, production, and references.

The compactness and up-to-dateness of the information in this book are among its most commendable features. It is doubtful if there is any other place where one may find so quickly and satisfactorily botanical information about our common crops. While the volume was written primarily as a textbook for botanical courses in agricultural colleges, a field which was far from adequately filled, this book should be on the shelf of every botanical teacher and investigator, because of its value as a source of ready and reliable information. The publishers also may be commended for the neat and pleasing appearance which the book presents.—H. C. COWLES.

MINOR NOTICES

Flora of Bermuda.—BRITTON² has published an illustrated *Flora of Bermuda* which is attractive in appearance and unusually inclusive in its contents. The land area is a little over 19 square miles, or about one-fourth the size of

¹ ROBBINS, W. W., The botany of crop plants. pp. xix+681. *figs.* 263. Blakiston's Son & Co. Philadelphia. 1917.

² BRITTON, NATHANIEL LORD, *Flora of Bermuda*. 8vo. xi+585. *figs.* 519. New York: Scribner's Sons. 1918. \$4.50.

Staten Island, but the flora calls for a book of nearly 600 pages. About 80 per cent of the land plants occur also in the West Indies or southern Florida or both, while about 8.7 per cent of the total native flora is endemic, "there being 61 species in Bermuda or its waters not known to grow naturally anywhere else in the world." The representation of groups by the native species is as follows: Spermatophytes 146, Pteridophytes 19, Bryophytes 51, Lichens 80, Fungi 175 (at least), Algae 238, making a total of 709 species. The volume contains descriptions and illustrations of 519 species of Spermatophytes, Pteridophytes, and Bryophytes, and also accounts, not illustrated, of the Lichens, Fungi, and Algae.

The excellent text cuts, simple keys, and clear descriptions should make the volume a very effective introduction to an interesting flora.—J. M. C.

NOTES FOR STUDENTS

Prothallia and sporelings of lycopods.—Recent investigations have added greatly to our knowledge of some difficult prothallia and sporelings of lycopods and, with researches now well advanced, may make these phases of the life history as clear as in the common ferns. The Lycopodiales and Psilotales will be considered separately.

LYCOPODIALES.—Among the investigators who have studied the prothallia of *Lycopodium*, two have been preeminent both in field and laboratory work, namely, TREUB, who devoted his attention to the tropical species of Java, and BRUCHMANN, who studied species of the northern temperate zone. A third investigator of the first rank must now be added, the Rev. J. E. HOLLOWAY, who has discovered and studied the prothallia and sporelings of various New Zealand species of *Lycopodium*, so that species of the southern temperate zone are now represented. Three papers³ have already appeared and the investigation is still in progress.

The introductory paper deals with *L. volubile*, *L. scariosum*, *L. densum*, *L. laterale*, *L. cernuum*, and *L. Billardieri*, all of which, except *L. cernuum*, are confined to the islands and countries of the south Pacific. He found prothallia of all except *L. densum*, so that 4 species are recorded for the first time, *L. cernuum* having been described by TREUB. Only a brief mention is made of the prothallia, the paper dealing, as its title indicates, with the comparative anatomy. The structure of the stele in young and adult plants is compared, and it is clearly shown that the radial type is primitive and that the banded type is derived from it.

³ HOLLOWAY, J. E., A comparative study of the anatomy of six New Zealand species of *Lycopodium*. Trans. New Zealand Inst. 42:356-370. pls. 31-34. 1909.

———, Studies in the New Zealand species of the genus *Lycopodium*. Part I. Trans. New Zealand Inst. 48:253-303. pls. 17, 18. figs. 102. 1916.

———, Studies in the New Zealand species of the genus *Lycopodium*. Part II. Methods of vegetative reproduction. Trans. New Zealand Inst. 49:80-93. pls. 8, 9. figs. 24. 1917.